

● Geologic Sources of Historic Stone Architecture in Iowa

by Brian J. Witzke



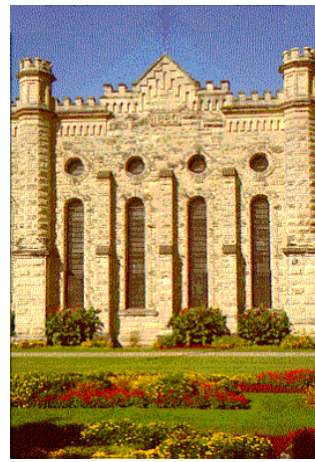
Iowa is richly endowed with a variety of rock resources suitable for building construction, and their utility is particularly well displayed in the early architectural heritage of our state. Although building stone is still actively quarried at a few places in Iowa, notably the quarries at Stone City, quarrying of building stone was more widespread during the 1800s and early 1900s, before the advent of cement block and poured concrete construction. Wherever rock resources were conveniently located near growing communities and farms, quarry workers labored to extract blocks of rock for building purposes, especially for foundation construction. Blocks were often “dimensioned” into desired sizes by the use of hammer and chisel, leaving marks that often are still visible on historic stone buildings across Iowa. Some quarry operations used rock saws and other mechanical devices to make precision block cuts or create stone lintels, trusses, or decorative pieces. Masons used these stone materials to construct houses, churches, stores, public buildings, and other structures.

A diversity of rock types have been used in Iowa for stone construction. Limestone and dolomite have been extensively quarried for building stone. Although most sandstones are not very durable, some that are cemented by iron minerals provide a lasting and attractive building stone, as seen in the Amana colonies. Additional materials are locally important, including field stones derived from glacial drift (see photo). Even quartzite, coal, and geodes have been used. The Iowa Geological Survey has played an important historic role in locating and describing the varieties of stone available for building and other uses in Iowa.

Photo by Robert McKay

IOWA MEN’S REFORMATORY, ANAMOSA.

The Men’s Reformatory, constructed in several stages between 1872 and 1936, is one of the most imposing stone buildings in Iowa. It is composed of carefully dimensioned blocks of “Anamosa stone” quarried by convict labor at the neighboring “penitentiary quarries.” This stone, with its distinctive finely laminated appearance, is an attractive and durable Silurian-age dolomite still actively quarried for building stone at nearby Stone City.



Photos by Paul VanDorpe

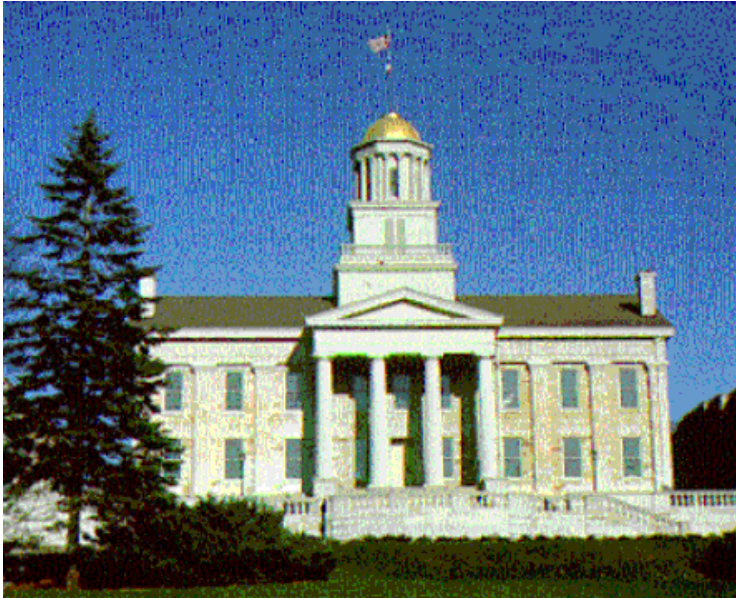
SIOUX CITY PUBLIC MUSEUM.



The Sioux City museum is housed in the Romanesque-style Peirce mansion built in the early 1890s. It is constructed of distinctive and durable pink-to purple-colored Sioux Quartzite of Precambrian age, the oldest rock unit exposed at the land surface in Iowa. Quartzite quarries are located near Sioux Falls and nearby areas of Minnesota and northwesternmost Iowa. Many outstanding buildings are constructed from this enduring stone in the tri-state region and elsewhere.

Photo courtesy of Sioux City Public Museum

OLD CAPITOL, IOWA CITY.



Stately limestone block construction characterizes Iowa's former territorial capitol and first state capitol, whose cornerstone dates to 1840. The imposing blocks of Devonian-age limestone were hand-quarried at Iowa City and along present-day Coralville Lake in Johnson County. Occurrences of natural building stone in the area were important in deciding the site of Iowa's capital city.

Photos by Photographic Services, The University of Iowa

NEW MELLERAY ABBEY, DUBUQUE CO.



Many beautiful stone churches can be seen across Iowa, and the New Melleray Abbey near Dubuque is illustrated as an example of the rich heritage of religious construction found in our state. This Trappist monastery was constructed by monks in several construction phases beginning in 1868 and continuing into the 1950s. It is composed principally of Silurian-age dolomite blocks from the monastery's quarry, with edge-blocks and windows of Anamosa stone. Some intermediate construction is of Indiana limestone, a common building stone used throughout the Midwest.

Photos by Steve Hall

HISTORIC MONTAUK, CLERMONT.



This beautiful Italianate mansion of brick and native limestone was built in 1874 for William Larrabee, Iowa's 12th governor. Montauk serves as an example of the use of building stone for the foundation, lintels, and cornices in an otherwise brick construction. Many buildings from the 1800s and early 1900s possess building stone foundations, but later constructions are primarily characterized by foundations of cement block or concrete.

Building photos by Ken Formanek and window detail photo by Lynette Seigley.

STATE CAPITOL, DES MOINES.



The state capitol building in Des Moines, constructed from 1872-1884 from a variety of building stones, is a spectacular example of late 19th-century stone construction. The granite base was secured from Buchanan County boulders and quarries in Minnesota. Limestone blocks comprising the foundation and lower levels were quarried in Iowa at locations in Johnson and Madison counties. The bulk of the exterior was constructed from sandstone blocks derived from quarries in Missouri. Additional stone, both local and imported, was used in the interior construction, including a number of decorative marbles.

Photo courtesy of State Historical Society of Iowa - Iowa City

IOWA LAKESIDE LABORATORY, W. OKOBOJI LAKE.



Glacial deposits across Iowa contain an abundance of boulders and cobbles of igneous and metamorphic rocks transported via glaciers from Minnesota. In areas where the bedrock is deeply buried, these easily accessible field stones have been utilized for buildings, principally house and barn foundations. The fine examples of boulder construction shown here is found at Iowa Lakeside Laboratory, a state university field station for natural history classes and research.

Photos by Robert McKay

GROTTO OF THE REDEMPTION, WEST BEND.



The famous West Bend grotto in Palo Alto County provides an example of the varied styles of stone construction found in Iowa. It incorporates an incredible diversity of rock types extravagantly encrusted over a concrete framework. Striking rocks, minerals, crystals, ores, semiprecious stones, shells, and fossils came from many localities around the United States and elsewhere. Construction was initiated in 1912 under the direction of Father Paul Dobberstein, whose vision and lifelong dedication resulted in this remarkable labyrinth of grotto structures.

Photos by Jean Cutler Prior (above left) and Lynette Seigley (above right).



Clusters of quartz crystals, especially rose, white, smoky and amethyst varieties were used to decorate this wall in the grotto. This close-up view also includes blue-green copper minerals, fragments of red jasper, glints of pyrite ("fool's gold"), globular mounds of white chalcedony, rust-colored iron-rich rocks, sea shells, and small geodes.

Photo by Paul VanDorpe

FORT ATKINSON STATE PRESERVE.



Fort Atkinson was constructed between 1840 and 1842 as a frontier military post in northeast Iowa to enforce a treaty to protect the area's Winnebagos from other Indians. Limestone slabs derived from the fort's quarry were used to construct foundations for the barracks and other buildings. The main buildings were limestone-walled constructions. Restored buildings as well as stone ruins are included today within this state preserve.

Photos by Ken Formanek

SANDSTONE HOUSE, AMANA.



This sandstone house (Olde World Lace Shoppe), built in 1857, is characteristic of the simple and pleasing architectural style found throughout the Amana colonies. Residential and community buildings in several of the Amana villages are built from this distinctive locally quarried reddish-brown sandstone of Pennsylvanian age. Amana's sandstone buildings largely date from the 1850s through 1870s.

Photos by Paul VanDorpe

COAL PALACE, OTTUMWA.



The Coal Palace, constructed in 1890, was a unique and imaginative example of geologic materials used as building stone in Iowa. Completely veneered with blocks of coal, it was built to honor the work of area miners and to publicize the coal resources of southern Iowa. These coal deposits are the carbonized remains of plants that flourished in tropical coastal lowlands present here about 300 million years ago (Pennsylvanian age).

The lavish palace-like building displayed a lofty 200-foot tower, with a dance floor near the top. In contrast to its dark exterior, the interior was bright, with vast rooms decorated with colorful displays made of wheat, oats, corn, sorghum and cattails, including a wall-sized portrait of Chief Wapello. There was a large auditorium for concerts, plays and speeches, and even a 30-foot tall waterfall. A reconstructed coal mine was featured beneath the structure. The Coal Palace was dismantled following the 1891 exposition season.

Photo courtesy of State Historical Society of Iowa - Iowa City

Adapted from *Iowa Geology 1996, No. 21*, Iowa Department of Natural Resources